Space Weather Forecast

Issued on Friday, 15 April 2022 at 01:30 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: G1 Minor to G2 Moderate geomagnetic storms likely at first on day 1 (15th) due to CME affects.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low with no significant flares observed, although there have been signs of increasing activity as potential regions from the far side approach. There are three sunspots on the disc, however these are all currently small and simple. No Earth-directed coronal mass ejections (CMEs) have been observed.
Solar Wind / Geomagnetic Activity: The solar wind was slightly elevated, becoming elevated for a while after the CME arrived around 14/1230 UTC. This was the CME which left the Sun on the 11th. The magnetic field carried by the wind was weak becoming moderate then strong in strength following the CME, with long periods of having its north-south component in the negative (southward) direction. This resulted in the initially Unsettled to Active geomagnetic activity with a G1/Minor Storm interval observed 14/0900-1200 UTC and 14/1800-2100 UTC. Between 14/1500-1800 UTC a G2 Moderate geomagnetic storm was observed.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Very Low to Low. The three sunspot regions on the disc are small, and only showing limited growth, however activity from the far-side is increasingly likely to affect the Earth as it rotates near to and onto the near-side through the period.
Solar Wind / Geomagnetic Activity: Earth is likely within the CME magnetic cloud which left the Sun on the 11th, with ongoing affects forecast day 1 during day 1 (15th). Enhanced solar winds are then forecast to ease before a further enhancement from the arrival of the fast wind of a coronal hole is forecast later on day 2 (16th), although this is low confidence. No further CME arrivals are expected. Geomagnetic activity is forecast to be Active to G1 Minor or G2 Moderate Storm at times at first on day 1 (15th). Mostly Quiet to Unsettled conditions returning later through day 1 into day 2, but perhaps increasing to Active to G1 Minor Storm with any arrival of faster solar winds, most likely later day 2 (16th) or day 3 (17th). During day 3 into day 4 (17th-18th) a return to mainly Quiet conditions is expected.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	80	30	20	5
Strong	G3	No	2	2	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	2	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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